Conmed Sabre 2400 Electrosurgical Unit PM

Control Number _____ Date Tested: _____ Tested by: _____

PERIODIC VISUAL INSPECTION
The Sabre 2400 should be visually inspected at least every six months. This inspection should include checks for:

• Damage to the power cord or plug. Tightness of the power plug. PASS FAIL

• Proper mating and absence of damage to the patient connectors. PASS FAIL

• Obvious external or internal damage to the unit. PASS FAIL

• Accumulation of lint or debris within the unit or heatsink. PASS FAIL

• Control Panel punctures or dents PASS FAIL

PERIODIC PERFORMANCE TEST
The Sabre 2400 should be performance tested at least every six months.
Chassis Ground Integrity
Connect the ohmmeter between the earth ground prong of the power plug and the footswitch connector.

Confirm less than 0.1 ohm resistance. PASS FAIL

Perform the Output Power test indicated in the following table and record the actual current measured, depending on power setting and the value of the load resistor used.

Mode	Power Setting	Output Current (mA)	Actual mA	Power Setting	Output Current (mA)	Actual mA
Monopolar Pure Cut						
300 ohms	300	949-1040	_____	150	671-741	_____
400 ohms	300	822-908	_____	150	619-684	_____
500 ohms	300	730-806	_____	150	564-623	_____
Blend Cut						
300 ohms	180	739-812	_____	90	520-574	_____
400 ohms	180	634-700	_____	90	489-539	_____
500 ohms	180	562-620	_____	90	449-496	_____
Coag						
300 ohms	120	596-659	_____	60	417-461	_____
400 ohms	120	520-574	_____	60	368-406	_____
500 ohms	120	465-513	_____	60	329-363	_____
Bipolar						
50 ohms	50	949-1040	_____	25	671-741	_____
100 ohms	50	592-653	_____	25	425-469	_____
125 ohms	50	514-567	_____	25	360-397	_____

Output Power Test Results: PASS FAIL

RF Leakage

Set the unit for full power Standard Coag and Bipolar Coag. Connect a 200 ohm nonreactive resistor in series with a 250 mA RF ammeter, and a common earth ground (the footswitch connector shell will suffice). Place the meter and resistors on the table so that they are at least 0.5m away from the unit under test and any other conductive surface. One at a time, connect this series combination to each RF output terminal indicated in the following table, and activate the unit using the corresponding command. Confirm that no meter readings exceed the specified maximum.
Hand control coag activations are accomplished by connecting a jumper between the lower black jack and the red jack of the desired hand switchable accessory jack.

(The following measurement applies only to Sabre 2400 P/N's 60-5600-003 and 60-5600-015.) Measure A1 C67 and C68 in circuit resistance to confirm a value greater than 20M ohm resistance. Temporarily disconnect A1-J11 and measure RF leakage from the Foot Active with Foot Coag activation and confirm that RF leakage increases with the connector disconnected. Reconnect A1-J11 when finished. PASS FAIL NA

>WARNING< HAND CONTROL ACTIVATIONS SHOULD BE KEYED USING 3" OR LESS WELL INSULATED JUMPER(S). USE OF AN INSULATING ROD TO INSERT THE JUMPER IS ADVISED TO PREVENT RF BURNS.

Measured Output Terminal	Activation Command	Max Leakage (mA)	Actual Leakage
RETURN ELECTRODE	FOOT COAG	100	_____
RETURN ELECTRODE	LEFT HAND CONTROL COAG	100	_____
RETURN ELECTRODE	RIGHT HAND CONTROL COAG	100	_____
RETURN ELECTRODE	BOTH HAND CONTROL COAG	100	_____
FOOT ACTIVE	FOOT COAG	100	_____
BIPOLAR TOP	FOOT BIPOLAR	20	_____
BIPOLAR BOTTOM	FOOT BIPOLAR	20	_____

RF Leakage Results: PASS FAIL

Leakage from Inactive Outputs

Set the unit for full power Standard Coag and Bipolar Coag. Connect the 200 ohm, nonreactive resistor in series with the 250 mA RF ammeter. One at a time, connect that series combination between the return electrode connector and each RF output terminal shown in the table below, and activate the unit using the corresponding command. Confirm that no meter readings exceed the specified maximum. Hand control coag activations are accomplished by connecting a jumper between the lower black jack and the red jack of the desired hand switchable accessory jack.

>WARNING< HAND CONTROL ACTIVATIONS SHOULD BE KEYED USING 3" OR LESS WELL INSULATED JUMPER(S). USE OF AN INSULATING ROD TO INSERT THE JUMPER IS ADVISED TO PREVENT RF BURNS.

CAUTION: To avoid destroying the meter, never activate output terminal connected to the meter.

MEASURED OUTPUT TERMINAL	ACTIVATION COMMAND	MAXIMUM LEAKAGE (mA)	ACTUAL LEAKAGE
FOOT ACTIVE	LEFT HAND COAG	50	_____
FOOT ACTIVE	RIGHT HAND COAG	50	_____
FOOT ACTIVE	FOOT BIPOLAR	20	_____
LEFT HAND ACTIVE	FOOT COAG	50	_____
LEFT HAND ACTIVE	RIGHT HAND COAG	50	_____
LEFT HAND ACTIVE	FOOT BIPOLAR	20	_____
RIGHT HAND ACTIVE	FOOT COAG	50	_____
RIGHT HAND ACTIVE	LEFT HAND COAG	50	_____
RIGHT HAND ACTIVE	FOOT BIPOLAR	20	_____
BIPOLAR TOP	FOOT BIPOLAR	20	_____
BIPOLAR BOTTOM	FOOT BIPOLAR	20	_____

Leakage from Inactive Outputs: PASS FAIL

Aspen Return Monitor (A.R.M.) Calibration Check

Equipment: Non-inductive Decade Resistance Box (DRB) with attached dual foil return electrode cable. The DRB must be adjustable from 0 to 160 ohms in 1 ohm steps and accurate to 1%.
(A dual foil return electrode cable can be made by cutting the cable and connector (2 to 3 feet from the connector) from a dual foil return electrode, and stripping the wires for connection to the DRB.)

NOTE: Some DRBs may present a brief open circuit at the output terminals during switch movement. This may cause the A.R.M. software to calculate an erroneously high resistance reading. This effect may be minimized by making DRB setting changes quickly.

If the resistance read during any of the following tests is above the upper limit, repeat the test carefully stopping in each 1 ohm step for at least 1 second.

Procedure:

1. Disconnect all accessories from the Sabre 2400 front panel.

2. Power up the Sabre 2400 in the RUN Mode. Select Dual Foil Mode and confirm that Resistance Indicator has all 10 green bars flashing, the Monitor Set Key is flashing and that the Return Fault Indicator is illuminated.

PASS FAIL

3. Using the test cable, connect the DRB to the Return Electrode Jack.

4. Adjust the DRB until eight bars of the Resistance Indicator are flashing.

5. Carefully advance the DRB in 1 ohm steps until all 10 bars of the Resistance Indicator are flashing. Confirm that the DRB reads between 137 and 163 ohms.

PASS FAIL

6. Set the DRB to 7 ohms and confirm that the Resistance Indicator is dark and the Return Monitor is lit.

PASS FAIL

7. Select Single Foil Mode. Confirm the Resistance Indicator stops flashing and the Return Monitor is not illuminated.

PASS FAIL

8. Increase the DRB in 1 ohm steps until an audible Return Fault Alarm is sounded and the
Return Fault Indicator is lit. Confirm the DRB is between 8 and 12 ohms.

PASS FAIL

9. Decrease the DRB setting in 1 ohm steps until the Return Fault Indicator goes dark. Confirm that the DRB reads from 1 to 4 ohms less than the resistance read in Step 8.

PASS FAIL

10. Disconnect the DRB. This completes the A.R.M. calibration test. If any readings were only slightly out of range, first check the DRB with an accurate ohmmeter. If the DRB is accurate, recalibrate the A.R.M. limits in CAL Mode. See Section 4.6.4. If one or more readings were far from the mark, troubleshoot the A.R.M. circuitry before attempting recalibration. See Section 4.7.6 in the service manual.

A.R.M. Performance Check: PASS FAIL